

## ABSTRACT

An arc fault detector, as a stand alone device or in combination with a circuit interrupting device such as a ground fault interrupter (GFCI), protects from potentially dangerous arc fault conditions. The device utilizes a line side or load side series connected inductance having an air or magnetic core to generate the derivative  $di/dt$  signal of the arc current in the conductor. The derivative signal is fed to an arc fault detector where it is analyzed for the presence of arcing. The device can have two series connected inductors inductively coupled to each other such that the signal from one inductor is inductively coupled into the other inductor for coupling to the arc fault detector.